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| APPLICATION NO.   | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO.        | CONFIRMATION NO.       |
|---|-------------|----------------------|----------------------------|------------------------|
| 10/624,840  | 07/23/2003  | Yoshihisa Suda       | 009682-126                 | 6579                   |
| 21839 7590 08/23/2007<br>BUCHANAN, INGERSOLL & ROONEY PC<br>POST OFFICE BOX 1404<br>ALEXANDRIA, VA 22313-1404 |             |                      | EXAMINER<br>MAPLES, JOHN S |                        |
|   |             |                      | ART UNIT<br>1745           | PAPER NUMBER           |
|   |             |                      | MAIL DATE<br>08/23/2007    | DELIVERY MODE<br>PAPER |

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

Application No.

10/624,840

Applicant(s)

SUDA ET AL.

Examiner

John S. Maples

Art Unit

1745

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 20 February 2007 and 06 June 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-7 and 9-20 ~~is~~ are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7 and 9-20 ~~is~~ are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

1. Claims 9 and 17 are objected to because claim 9 depends from a cancelled claim and the expression "neutral graphite" in line 3 of claim 17 appears to be a typo.

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 1-7, 9-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP-2001-093551 ('551) in view of Yamada et al.-US 5,432,023. (Yamada) (New Rejection with regard to claims 10-20)

Reference is made to the machine translation of '551 reference including all of the drawing figures which teaches a direct methanol fuel cell system including a plurality of fuel cells 2 that are connected to a fuel reservoir 1. The reservoir 1 may be a replaceable cartridge and may include valve element 23-see para. 41 and Figure 12. A

fuel feeder 3 moves the fuel from the reservoir to the fuel cells and includes infiltration structure-see para. 12 in the machine translation. In view of '551 using capillary action to move the fuel to the fuel cells, the ratio's set forth in claim 7 are inherently met. Though not specifically stated in '551, spent fuel is directed to a space-see para. 77, where it would have been obvious to have used a reservoir to collect spent fuel and recycle or use the same. Paragraph 12 of the machine translation of '551 teaches the claimed occluding element formed of a porous material, for example, a sponge, as '551 recites.

The '551 reference does not teach the microporous carbon material of the fuel electrode nor the configuration of each of the fuel cells. Yamada teaches a direct methanol fuel cell-see column 1, lines 26-48 and describes the fuel cell configuration in Figure 44 and in column 42, lines 20-49 where a fuel electrode has an electrolyte layer formed thereon which latter layer has an air electrode layer formed thereon. The fuel electrode of '551 is composed of a microporous carbon particulate material-see column 15, lines 12-23; column 19, lines 37-60; column 29, lines 54-58 and all of Examples 4-12. In particular, column 19, lines 37-60 teach microporous carbon because the pores of the carbon can be as small as 0.2 microns in size. With the carbon material being porous, it is inherent that it would transport and retain fuel. To have formed the fuel electrode of '551 of a microporous carbon material as taught in Yamada would have been obvious to one of ordinary skill in this art at the time the invention was made so that the fuel would be transported more easily therethrough. To also have formed the fuel cells of '551 of the configuration of Yamada would also have been obvious because

of the ease of flowing fuel to a plurality of stacks all at the same time, with the fuel passing through the middle of each one. The specific type of carbon material is deemed an obvious design expedient to provide for high conductivity of the fuel cell electrode obvious to one of ordinary skill in this art and because the claimed types of carbon material are notoriously well known in the fuel cell electrode art.

Applicant's arguments have all been considered but are not deemed persuasive. Applicant argues that Yamada does not teach a microporous carbon material. Reference is made to the previous paragraph in this action for the disclosure in Yamada of a microporous carbon material and in particular to column 19 of the same which specifically teaches micropores in the carbon material.

The only other argument raised by applicant is that neither '551 nor Yamada teach an occluding element as currently claimed and that these references do not teach such an element such that fuel can be in contact with the occluding element in any orientation. As set forth previously in this section of the action, '551 discloses a porous material, for example, a sponge, which material would retain fuel therein regardless of the orientation of the fuel reservoir and thus meets the claimed recitations.

5. Applicant's amendment necessitated the new grounds of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within

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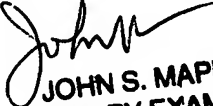
TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to John S. Maples whose telephone number is 571-272-1287. The examiner can normally be reached on Monday-Thursday, 6:15-3:45, and every other Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JSM/8-20-2007

  
JOHN S. MAPLES  
PRIMARY EXAMINER